



ISSN: 2456-0057

IJPNPE 2018; 3(2): 118-119

© 2018 IJPNPE

[www.journalofsports.com](http://www.journalofsports.com)

Received: 21-05-2018

Accepted: 25-06-2018

**Dr. P Kanagasabai**

Professor of Physical Education  
(Retd), Annamalai University,  
Chidambaram, Tamil Nadu,  
India

**Dr. S Manikandan**

Department of Physical  
Education, Tamilnadu Physical  
Education and Sports University  
Chennai, Tamil Nadu, India

**Dr. C Lakshmanan**

Assistant Professor, Department  
of Physical Education  
Tamilnadu Physical Education  
and Sports University Chennai,  
Tamil Nadu, India

## Changes on selected motor fitness components in response to combination of aerobic and anaerobic training among badminton players

**Dr. P Kanagasabai, Dr. S Manikandan and Dr. C Lakshmanan**

### Abstract

The purpose of the study was to find out the changes on selected motor fitness components in response to combination of aerobic and anaerobic training among badminton players. To achieve this purpose, thirty male players were selected as subjects, their aged between 18 to 25 years, they are studying in the various departments, Annamalai University, Chidambaram, Tamil Nadu. The selected subjects were divided into two equal groups of fifteen subjects each, namely combination of aerobic and anaerobic training group and control group. The aerobic and anaerobic training group trained for combination of aerobic and anaerobic exercises three sets per exercise per session at 60 to 80% with a progressive increase in load with the number of weeks. Strength endurance and agility were selected as criterion variables and they were tested by using sit-ups and shuttle run respectively. ANCOVA was used to find out the significant difference if any between the groups. The results of the study showed that there was a significant differences on strength endurance and agility between combination of aerobic and anaerobic training group and control group.

**Keywords:** aerobic training, anaerobic training, motor fitness, strength endurance, agility

### Introduction

Motor fitness is one of the components of the total fitness of the individual, which also includes mutual, social and emotional fitness. It is one of the basic requirements of life broadly speaking it means the ability to carry out our daily tasks without under fatigue.

Strength endurance is required in all sports movement, whether fast or slow, movements have to be done under lesser or higher conditions of fatigue. Agility is a combination of several athletic traits such as strength, reaction time, speed of movement, power and co-ordination. It's display becomes essential in such movements as dodging, zigzag running, stopping and starting and changing body positions quickly.

Plyometric is a method of developing explosive power, an important component of the athletic performance as plyometric movements are performed in a wide spectrum of sports. In badminton, it can be played more skillfully when players have the power that combines with strength and speed to develop explosive power for participating in various sports activities. The aerobic and anaerobic exercises improve significantly in developing motor fitness variables of the badminton players.

### Methodology

The purpose of the study was to find out the changes on selected motor fitness components in response to combination of aerobic and anaerobic training among university badminton players. To achieve this purpose, thirty male badminton players were selected as subjects, their aged between 18 to 25 years, they are studying in the department of physical education, Annamalai University, chidambaram. The selected subjects were divided into two equal groups of fifteen subjects each, namely combination of aerobic and anaerobic training group and control group. The selected subjects had undergone the combination of aerobic and anaerobic training for eight weeks, with three days per week in alternate days. After 10 to 15 minutes of warm-up the subjects underwent their respective three sets per exercise per session at 60 to 80% with a progressive increase in load with the number of weeks.

### Correspondence

**Dr. P Kanagasabai**

Professor of Physical Education  
(Retd), Annamalai University,  
Chidambaram, Tamil Nadu,  
India

The control group did not participate in any specialized training during the period of study. Strength endurance and agility were selected as criterion variables and they were tested by using sit-ups and shuttle run respectively. ANCOVA was used to find out the significant difference if any between the groups.

### Experimental design and statistical procedure

The experimental design used for the present investigation was random group design involving 30 subjects for training effect. Analysis of Covariance (ANCOVA) was used as a statistical technique to determine the significant difference, if any, existing between pretest and posttest data on selected dependent variables separately and presented in Table-I.

Table 1

Variables	Test		Combination of Aerobic and Anaerobic Training Group	Control Group	Source of Variance	SS	DF	Mean Square	'F' Ratio
Strength Endurance	Pre test	Mean	47.00	47.27	Between	0.533	1	0.533	0.112
		S.D	1.93	2.40	Within	132.92	28	4.75	
	Post test	Mean	52.92	47.52	Between	218.700	1	218.7	48.344
		S.D	2.16	2.10	Within	126.67	28	4.53	
	Adjusted Post test	Mean	52.94	47.52	Between	233.785	1	233.785	112.55
					Within	56.081	27	2.077	
Agility	Pre test	Mean	10.93	10.99	Between	0.033	1	0.033	0.742
		S.D	0.252	0.162	Within	1.259	28	0.04495	
	Post test	Mean	10.73	10.96	Between	0.385	1	0.385	22.049
		S.D	0.123	0.141	Within	0.489	28	0.0175	
	Adjusted Post test	Mean	10.73	10.96	Between	0.336	1	0.336	20.307
					Within	0.446	27	0.01653	

### Results

The posttest mean of combination of aerobic and anaerobic training group and control group on strength endurance ( $52.92 \pm 2.16$  Vs  $47.52 \pm 2.10$ ) resulted in a 'F' ratio of 48.344. The adjusted posttest mean of combination of aerobic and anaerobic training group and control group on strength endurance ( $52.94$  Vs  $47.52$ ) resulted in a 'F' ratio of 112.55. The results of the study indicate that there was a significant difference between combination of aerobic and anaerobic training group and control group on strength endurance. The posttest mean of combination of aerobic and anaerobic training group and control group on agility ( $10.73 \pm 0.123$  Vs  $10.96 \pm 0.141$ ) resulted in a 'F' ratio of 22.049. The adjusted posttest mean of combination of aerobic and anaerobic training group and control group on agility ( $10.73$  Vs  $10.96$ ) resulted in a 'F' ratio of 20.307. The results of the study indicate that there was a significant difference between combination of aerobic and anaerobic training group and control group on agility.

### Conclusion

Based on the results of the study, it was concluded that the combination of aerobic and anaerobic training program has resulted in significant increase in selected motor fitness components such as strength endurance and agility.

### References

- Cronin JB, Hanse KT. Strength and Power Predictors of Sports Speed. J Strength Cond. Res. 2005; 19(2):349-57.
- Donald Chu A. Jumping into Plyometrics, New York: Human Kinetics Publishers, 1998, 1.
- James Radcliff C. Robert Partentines C. Plyometrics, (Human Kinetics), 1985, 3.
- John Bunn W. Scientific Principles of Coaching, 2<sup>nd</sup> ed. Englewood Cliffs, New Jersey: Prentice Hall, Inc. 1972, 125.
- Pothemus, Burkhard. The Effects of Plyometric Training Drills on the Physical Strength Gains of Collegiate Football Players. National Strength and Conditioning Association Journal. 1990; 2:13-15.
- Troy Burger. Complex Training Compared to a

Combined Weight Training and Plyometric Training Programme, M.S Thesis-Abstract, Microform Publication Bulletin, 1990, 1999.

- Walter Winter Bottom, Soccor Coaching, 2<sup>nd</sup> ed., London: The Naldrett Press, 1954, 54-67.
- Watson AWS. Physical Fitness and Athletic Performances, New York: Longman Inc, 1983.